

WHAT IS CLAIMED IS:

1 1. A method of making a cathode for a primary lithium battery comprising
2 coating an expanded metal grid including aluminum with a composition including a cathode
3 active material.

1 2. The method of claim 1, wherein the composition is a slurry.

2 3. The method of claim 1, wherein the cathode active material includes a
3 manganese dioxide, a CF_x , iron disulfide, or a vanadate.

1 4. The method of claim 1, wherein the composition includes a carbon source.

1 5. The method of claim 4, wherein the carbon source includes a carbon fiber, a
2 graphite, an acetylenic carbon, or a combination thereof.

1 6. The method of claim 1, wherein the composition includes a binder.

1 7. The method of claim 6, wherein the binder includes an organic polymer.

1 8. The method of claim 1, wherein the grid includes a 1000 series aluminum, a
2 2000 series aluminum alloy, a 3000 series aluminum alloy, a 5000 series aluminum alloy, a
3 6000 series aluminum alloy, or a 7000 series aluminum alloy.

1 9. The method of claim 1, wherein the grid includes a 6000 series aluminum
2 alloy.

1 10. The method of claim 1, wherein the grid includes an aluminum alloy
2 including 0-0.4% by weight of chromium.

1 11. The method of claim 1, wherein the grid includes an aluminum alloy
2 including 0.01-6.8% by weight of copper.

1 12. The method of claim 1, wherein the grid includes an aluminum alloy
2 including 0.05-1.3% by weight of iron.

1 13. The method of claim 1, wherein the grid includes an aluminum alloy
2 including 0.1-7% by weight of magnesium.

1 14. The method of claim 1, wherein the grid includes an aluminum alloy
2 including 0-2% by weight of manganese.

1 15. The method of claim 1, wherein the grid includes an aluminum alloy
2 including 0-2% by weight of silicon.

1 16. The method of claim 1, wherein the grid includes an aluminum alloy
2 including less than 0.25% by weight of titanium.

1 17. The method of claim 1, wherein the grid includes an aluminum alloy
2 including 0-8.2% by weight of zinc.0-2.3% by weight of nickel,

1 18. The method of claim 1, wherein the grid includes an aluminum alloy
2 including 0-2.3% by weight of nickel.

1 19. The method of claim 1, wherein the grid has a resistivity of less than 100
2 mΩ/cm.

1 20. The method of claim 1, wherein the grid has a resistivity of less than 10
2 mΩ/cm.

1 21. The method of claim 1, further comprising pulling the grid before coating.

1 22. The method of claim 1, further comprising leveling the grid before coating.

1 23. The method of claim 1, further comprising drying the grid after coating.

1 24. The method of claim 23, further comprising calendering the grid after drying.

1 25. The method of claim 24, wherein calendering includes passing the grid
2 through a gap.

1 26. The method of claim 25, wherein the gap has a thickness of less than 25 mils.

1 27. The method of claim 26, further comprising heat treating the grid after
2 calendering.

1 28. The method of claim 27, further comprising drying the grid under vacuum
2 after heat treating.

1 29. The method of claim 9, wherein the composition is a slurry.

1 30. The method of claim 9, wherein the cathode active material includes a
2 manganese dioxide, a CF_x , iron disulfide, or a vanadate.

1 31. The method of claim 9, wherein the composition includes a carbon source.

1 32. The method of claim 31, wherein the carbon source includes a carbon fiber, a
2 graphite, an acetylenic carbon, or a combination thereof.

1 33. The method of claim 9, wherein the composition includes a binder.

1 34. The method of claim 31, wherein the binder includes an organic polymer.

1 35. The method of claim 9, further comprising pulling the grid before coating.

1 36. The method of claim 9, further comprising leveling the grid before coating.

1 37. The method of claim 9, further comprising drying the grid after coating.

1 38. The method of claim 37, further comprising calendering the grid after drying.

1 39. The method of claim 38, wherein calendering includes passing the grid
2 through a gap.

1 40. The method of claim 39, wherein the gap has a thickness of less than 25 mils.

1 41. A method of making a cathode for a battery comprising:
2 coating an expanded metal grid including an aluminum alloy with a composition
3 including a carbon source, a binder, and a cathode active material, wherein the cathode active
4 material includes a manganese dioxide;

5 calendering the grid after coating; and
6 heat treating the grid after calendering.

1 42. The method of claim 41, wherein calendering includes passing the grid
2 through a gap.

1 43. The method of claim 42, wherein the gap has a thickness of less than 25 mils.

1 44. The method of claim 43, further comprising drying the grid after coating and
2 before calendering.

1 45. The method of claim 41, further comprising sizing the grid after calendering.

1 46. The method of claim 41, further comprising edge-cleaning the grid after
2 calendering.

1 47. The method of claim 41, further comprising drying the grid under vacuum
2 after heat treating.

1 48. The method of claim 41, wherein the aluminum alloy is a 2000 series
2 aluminum alloy, a 3000 series aluminum alloy, a 5000 series aluminum alloy, a 6000 series
3 aluminum alloy, or a 7000 series aluminum alloy.

1 49. The method of claim 41, wherein the aluminum alloy is a 6000 series
2 aluminum alloy.

1 50. The method of claim 41, wherein the aluminum alloy including 0-0.4% by
2 weight of chromium, 0.01-6.8% by weight of copper, 0.05-1.3% by weight of iron, 0.1-7%
3 by weight of magnesium, 0-2% by weight of manganese, 0-2% by weight of silicon, less than
4 0.25% by weight of titanium, 0-2.3% by weight of nickel, and 0-8.2% by weight of zinc.

1 51. The method of claim 41, further comprising pulling the grid before coating.

1 52. The method of claim 41, wherein the binder includes an organic polymer.

1 53. The method of claim 52, wherein the binder includes
2 poly(tetrafluoroethylene), poly(vinylalcohol), or a combination thereof.

1 54. The method of claim 41, wherein the carbon source includes a carbon fiber, a
2 graphite, an acetylenic carbon, or a combination thereof.

1 55. The method of claim 41, wherein the grid has a resistivity of less than 100
2 mΩ/cm.

1 56. The method of claim 41, wherein the grid has a resistivity of less than 10
2 mΩ/cm.

1 57. A method of making a cathode for a battery comprising:
2 coating an expanded metal grid including an aluminum alloy with a composition
3 including a carbon source, a binder, and a cathode active material, wherein the cathode active
4 material includes a manganese dioxide;
5 drying the grid after coating;
6 calendering the grid to a thickness of less than 20 mils after drying;
7 sizing the grid after calendering;
8 edge-cleaning the grid after sizing;
9 heat treating the grid after edge-cleaning; and
10 drying the grid under vacuum after heat treating the grid.